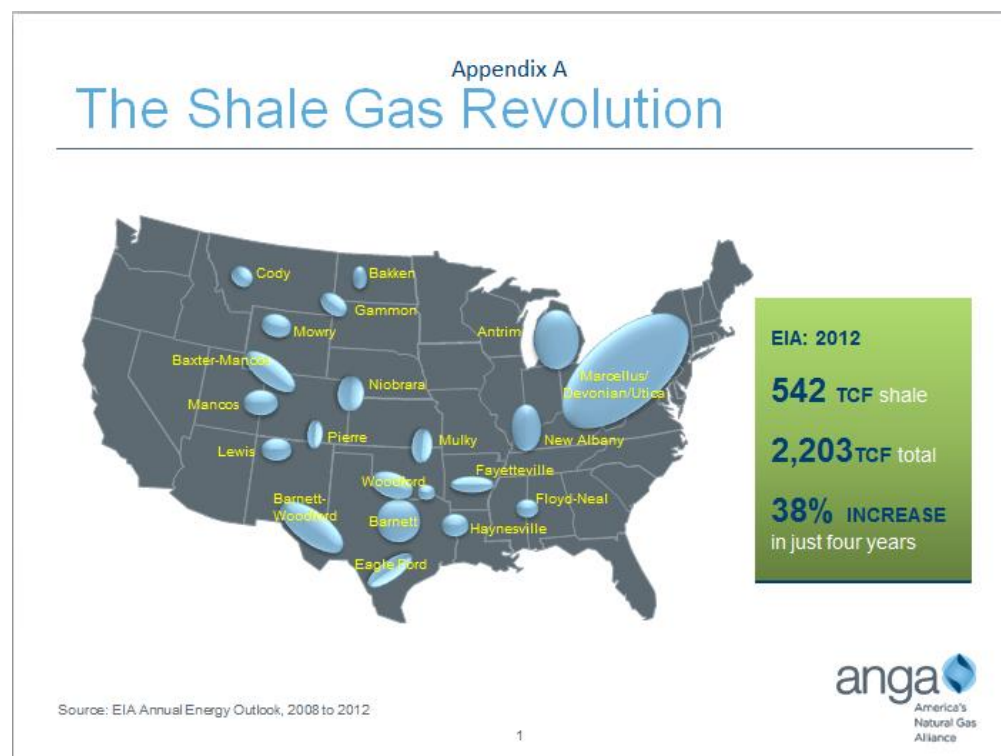


Submitted by Michelle Bloodworth  
Vice President of State Affairs and Business Development



What is the potential in Michigan for non-renewable generation from Michigan energy sources?

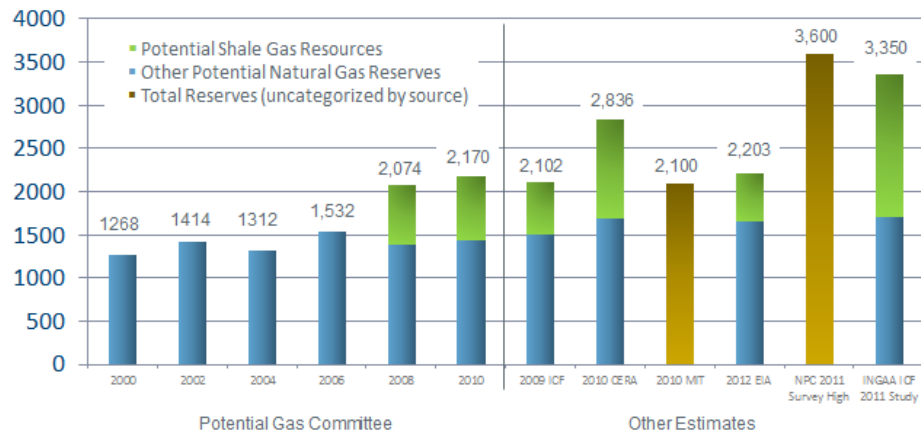
Michigan is fortunate to sit atop several shale plays. And it is those shale plays, particularly the Antrim, Collingwood and Utica here in Michigan, that have given us an abundance and availability of a clean energy source that is home grown (Appendix A). It is widely accepted now that we have enough accessible natural gas throughout our country to reshape the energy landscape (Appendix B). And, for Michigan, some of the necessary production can be found within our borders. With great infrastructure in place, Michigan has a major network of pipelines able to deliver the natural gas production to new power generation loads (Appendix C) and has unique geological formations that have allowed it to be a leader nationally in storage (Appendix D). On top of this, natural gas plants have attractive life cycle economics: 1) costing less to build than other intermediary or baseload generation and 2) operating more efficiently than plants relying on other fuels. The price stability (Appendix E) that comes with the abundance of domestic natural gas, along with the growing trend toward long-term contracts in the industry, further provides both producers and utilities with a stable foundation for Michigan's energy future. That's why more and more electric generation nationally is being powered by natural gas today.



## Appendix B

# Abundant By Any Estimate

Estimates of U.S. Recoverable Natural Gas  
(TCF – trillion cubic feet)



Sources:

ICF: As reported in MIT Energy Initiative, 2010, The Future of Natural Gas, interim report; Table 2.1

EIA: 2012 AEO, June 2012

PGC: Potential Gas Committee's Advance Summary and press release of its biennial assessment; see [www.potentialgas.org](http://www.potentialgas.org)

CERA: IHS CERA, 2010, Fueling North America's Energy Future: The Unconventional Natural Gas Revolution and the Carbon Agenda

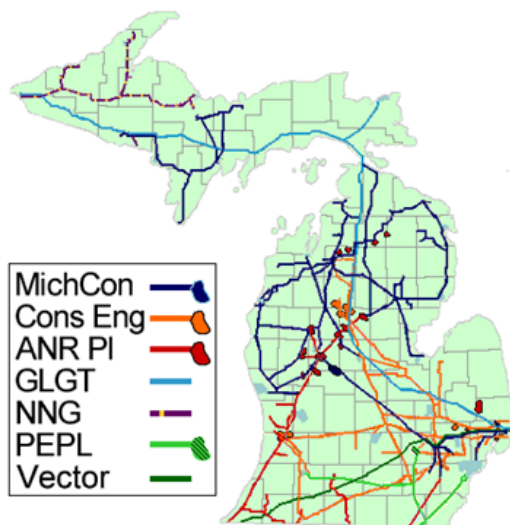
MIT: MIT Energy Initiative, 2010, The Future of Natural Gas, interim report

NPC: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources Johns Hopkins University; Prudent Development Study 2011



## Appendix C

# Pipeline Infrastructure In Place



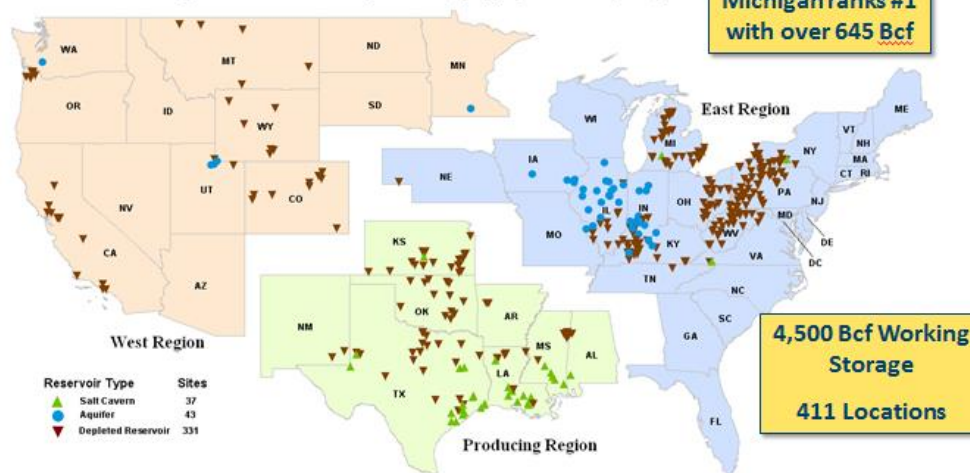
Map Source: Michigan Public Service Commission

- Served by four major interstate pipelines with a combined 16.5 Bcf per day of capacity and 400 Bcf of storage in the heart of the state.
- Access to virtually all of North America's major supply and shale basins and also Western Canada.
- Two-way pipeline flows and connectivity throughout the state with influx of shale gas.
- Expansions proposed by Enbridge and Bluewater lead future development prospects.



## Appendix D U.S. Storage Capacity

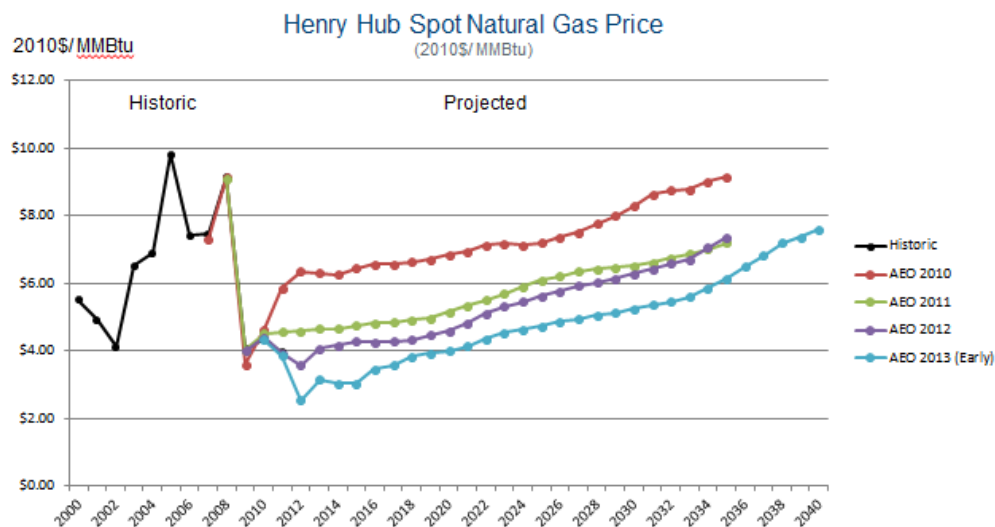
U.S. Lower 48 Underground Natural Gas Storage Facilities, by Type (December 31, 2010)



Source: EIA Data Year-End 2010

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America's  
Natural Gas  
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## Appendix E Long-Term Price Stability



Source: EIA Annual Energy Outlook: 2013 (Early Release), 2012, 2011, 2010, and 2009  
Henry Hub Spot prices (EIA reported actual prices included 2000 to 2010)

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